

Appl. No. 10/622,668
Submission for RCE/Reply to Office Action of May 2, 2007

Attorney Docket No. FSF-031391

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

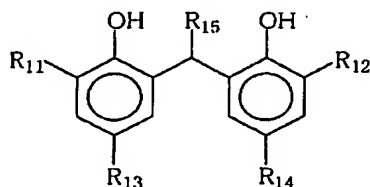
1. (Currently amended) A photothermographic material comprising a substrate, and a photosensitive silver halide, a non-photosensitive organic silver salt, reducing agents for thermal development and a binder which are provided on the substrate, wherein:

the reducing agents for thermal development include a reducing agent which does not form a dye during thermal development and a reducing agent which forms a dye during thermal development;

the reducing agent which forms a dye has higher activity than that of the reducing agent which does not form a dye so that a developing activity of the reducing agent which forms a dye is higher by 0.02 or more in terms of logarithmic value (-LogE) of an exposing amount E giving the concentration 1.5 than that of the reducing agent which does not form a dye;

the reducing agent which does not form a dye is a compound represented by the following formula (R1):

formula (R1)



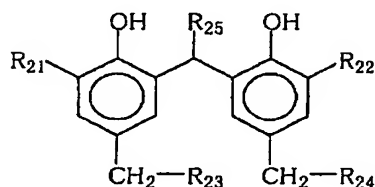
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wherein R_{11} and R_{12} each independently represent a secondary or tertiary alkyl group; R_{13} and R_{14} each independently represent an alkyl group having a 2 or more carbon atoms; and R_{15} represents an alkyl group; ~~and~~

the reducing agent which forms a dye is a compound represented by the following formula (R2):

formula (R2)



wherein R_{21} and R_{22} each independently represent a secondary or tertiary alkyl group; R_{23} and R_{24} each independently represent a hydrogen atom, a hydroxyl group, an alkoxy group, an aryloxy group, an acyloxy group, an amino group or a heterocyclic group; and R_{25} represents a hydrogen atom or an alkyl group; and

wherein the reducing agent represented by the formula (R2) is contained in an amount of 5% to 40% by mol relative to a total amount of the reducing agents.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (original) A photothermographic material according to claim 1, which further comprises a development promoter.

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6. (Cancelled)

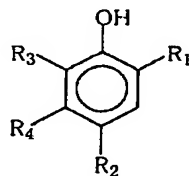
7. (Original) A photothermographic material according to claim 5, wherein the development promoter contains at least one selected from the group consisting of a compound represented by the following general formulae (A-1) and a compound represented by the following general formula (A-2):

General formula (A-1)



wherein Q_1 represents an aromatic group or a heterocyclic group which bonds to -NHNH-Q_2 via a carbon atom; Q_2 represents a carbamoyl group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a sulfonyl group or a sulfamoyl group,

General formula (A-2)



wherein R_1 represents an alkyl group, an acyl group, an acylamino group, an sulfonamide group, an alkoxycarbonyl group, or a carbamoyl group; R_2 represents a hydrogen atom, a halogen atom, an alkyl group, an alkoxy group, an aryloxy group, an alkylthio group, an arylthio group, an acyloxy group, or a carbonic acid ester group; and R_3 and R_4 each represent a group which is substitutable at a benzene ring, or couple with each other to form a condensed ring.

8. (Cancelled)

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9. (Original) A photothermographic material according to claim 1, which further comprises a hydrogen bond-forming compound.

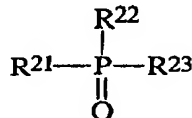
10. (Cancelled)

11. (Original) A photothermographic material according to claim 7, which further comprises a hydrogen bond-forming compound.

12. (Cancelled)

13. (Original) A photothermographic material according to claim 9, wherein the hydrogen bond-forming compound is a compound represented by the following general formula (D):

General formula (D)



wherein R^{21} to R^{23} each independently represent an alkyl group, an aryl group, an alkoxy group, an aryloxy group, an amino group or a heterocyclic group.

14. (previously presented) A photothermographic material according to claim 1, which comprises a compound represented by the following general formula (H):

General formula (H)



wherein Q represents an alkyl group, an aryl group or a heterocyclic group; Y represents a divalent linking group; Z_1 and Z_2 each represent a halogen atom; X represents a hydrogen atom or an electron withdrawing group; and n represents 0 or 1.

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15. (Original) A photothermographic material according to claim 1, wherein a total amount of coated silver is 1.9 g/m^2 or less.

16. (Original) A photothermographic material according to claim 1, wherein thermal developing is completed within 16 seconds.

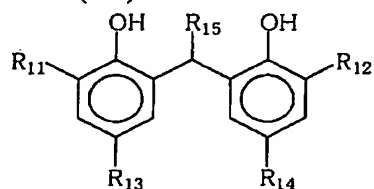
17. (Currently amended) A method for forming a black and white image due to a silver image on a monosheet photothermographic material by exposing the material and then thermally developing the exposed material, wherein the material comprises a substrate, and a photosensitive silver halide, a non-photosensitive organic silver salt, reducing agents for thermal development and a binder which are provided on the substrate, wherein:

the reducing agents for thermal development include a reducing agent which does not form a dye during thermal development and a reducing agent which forms a dye during thermal development;

the reducing agent which forms a dye has higher activity than that of the reducing agent which does not form a dye so that a developing activity of the reducing agent which forms a dye is higher by 0.02 or more in terms of logarithmic value ($-\text{LogE}$) of an exposing amount E giving the concentration 1.5 than that of the reducing agent which does not form a dye;

the reducing agent which does not form a dye is a compound represented by the following formula (R1):

formula (R1)



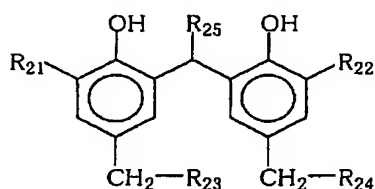
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wherein R_{11} and R_{12} each independently represent a secondary or tertiary alkyl group; R_{13} and R_{14} each independently represent an alkyl group having a 2 or more carbon atoms; and R_{15} represents an alkyl group; ~~and~~

the reducing agent which forms a dye is a compound represented by the following formula (R2):

formula (R2)



wherein R_{21} and R_{22} each independently represent a secondary or tertiary alkyl group; R_{23} and R_{24} each independently represent a hydrogen atom, a hydroxyl group, an alkoxy group, an aryloxy group, an acyloxy group, an amino group or a heterocyclic group; and R_{25} represents a hydrogen atom or an alkyl group; and

wherein the reducing agent represented by the formula (R2) is contained in an amount of 5% to 40% by mol relative to a total amount of the reducing agents.

18. (New) A photothermographic material according to claim 1, wherein the reducing agent represented by the formula (R2) is contained in an amount of 10 to 30% by mol relative to a total amount of the reducing agents.

19. (New) A method according to claim 17, wherein the reducing agent represented by the formula (R2) is contained in an amount of 10 to 30% by mol relative to a total amount of the reducing agents.